

PROCHILODUS BRITSKII, A NEW SPECIES OF
PROCHILODONTID FISH
(OSTARIOPHYSI: CHARACIFORMES), FROM THE
RIO APIACÁ, RIO TAPAJÓS SYSTEM,
MATO GROSSO, BRAZIL

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Abstract.—*Prochilodus britskii* is described from a single locality in the rio Apiacá, a tributary of the rio Arinos, of the rio Tapajós system, Brazil. The species is distinguished from all other *Prochilodus* species by its slender caudal peduncle (its depth 8.8 to 9.4% of SL versus 9.7% or higher in the remaining species). *Prochilodus britskii* is a member of the assemblage of *Prochilodus* species lacking dark marks on the caudal-fin. The 6 or 7 teeth in the inner tooth row of each side of the lower jaw of *P. britskii* distinguish it from all other species with plain caudal fins which have 8 to 18 teeth with the exception of *P. vimboides* which has 6 to 13 teeth in that series. *Prochilodus britskii* differs from *P. vimboides* in having 41 to 44 pored scales in the lateral line instead of 34 to 39.

Resumo.—*Prochilodus britskii*, uma nova espécie da família Prochilodontidae é descrita de uma única localidade no rio Apiacá, afluente do rio Arinos, tributário do rio Juruena, pertencente à bacia do rio Tapajós, no Estado de Mato Grosso, Brasil. A espécie difere de todas as outras espécies do gênero *Prochilodus* pelo fato da menor altura do seu pedúnculo caudal variar de 8,8 a 9,4% do comprimento padrão contra valores iguais ou superiores a 9,7% nas outras espécies. *Prochilodus britskii* é parte do grupo de espécies do gênero sem manchas negras na nadadeira caudal. Dentro de tal grupo pode ser distinguido das outras espécies por possuir 6 a 7 dentes na fileira interna da metade da maxila inferior contra 8 a 18 nas espécies restantes, com exceção de *P. vimboides*, que possui 6 a 13 dentes na mesma fileira de dentes. *Prochilodus britskii* difere de *P. vimboides* por possuir 41 a 44 escamas perfuradas na linha lateral contra 34 a 39.

The prochilodontid genus *Prochilodus* Agassiz is composed of medium to large sized (up to ~45 cm SL) fish species, widely distributed through South American waters. They are, wherever they occur, among the most important species in inland commercial and subsistence fisheries (see Mago-Leccia 1972; Roberts 1973; Vari 1983; Lowe-McConnell 1975, 1987). Despite their economic importance and widespread distribution, the state of the *Prochilodus* systematics, as well as that of *Ichthyoelephas*

Posada Arango and *Semaprochilodus* Fowler, the two other recognized genera of the family, is very confused, with the only published revisionary study dealing with the Prochilodontidae (Mago-Leccia 1972) restricted to the Venezuelan species of the family.

This paper is part of ongoing phylogenetic and revisionary studies of the Prochilodontidae aiming to, among other things, solve the numerous taxonomic problems in the family (Castro 1990). This work is based on

material of a new species of the genus *Prochilodus* sent to me by Heraldo A. Britski (MZUSP). The specimens were collected at single locality, in the rio Apiacá, north of the city of Juará, State of Mato Grosso, in central Brazil. The rio Apiacá is a tributary of the rio Arinos, which, in turn, drains into the rio Juruena, a tributary of the rio Tapajós, a southern tributary of the rio Amazonas.

Methods and materials. — The methods of counting and measuring specimens in this paper are those outlined in Fink & Weitzman (1974:1–2). Standard length (SL) and other body measurements were taken in mm and are expressed as percentages of the standard length or, in the case of subunits of the head, as percentages of the bony head length. Ranges of counts include all specimens, with the values in square brackets being those of the holotype. Counts of total vertebrae are from radiographs and include the four vertebrae of the Weberian apparatus, and the fused PU1+U1 of the caudal skeleton counted as a single element. All perforated lateral-line scales were counted. In counts of fin rays, lower case Roman numerals indicate unbranched fin rays, and Arabic numbers indicate branched fin rays. In the dorsal-fin ray counts the predorsal spine is treated as an unbranched ray. Tooth counts were taken from the left side of the jaws. All the specimens examined for this study are deposited in the Museu de Zoologia da Universidade de São Paulo, São Paulo (MZUSP).

Prochilodus britskii, new species

Fig. 1, Table 1

Holotype. — MZUSP 41519, 221.5 mm SL, Brazil, Mato Grosso, rio Apiacá, N of city of Juará, upriver from a fall ($\sim 10^{\circ}36'S$, $58^{\circ}04'W$), collected by Convênio CEMAT/ENGEVIX, 15–24 Feb 1988.

Paratypes. — 6, MZUSP 38856–61, 195.5–238.5 mm SL, same collection data as holotype.

Diagnosis. — Distinguished from all other species of the genus *Prochilodus* by having a more slender caudal peduncle, its depth equal to 8.8 to 9.4% of standard length (SL) instead of values equal to or higher than 9.7% in all other species. *Prochilodus britskii* is a member of the assemblage of *Prochilodus* species lacking dark marks on the caudal-fin (Castro 1990). The 6 or 7 teeth in the inner tooth row of each side of the lower jaw of *P. britskii* distinguishes it from all other species with plain caudal fins which have 8 to 18 teeth in that series, with the exception of *P. vimbooides* which has 6 to 13 teeth in that series. *Prochilodus britskii* differs from *P. vimbooides* in having 41 to 44 pored scales in the lateral line instead of 34 to 39.

Description. — Table 1 gives morphometrics and meristics of the holotype and paratypes. Body relatively elongate, sub-cylindrical, greatest body depth at origin of dorsal fin. Caudal peduncle notably narrow vertically. Dorsal profile of head slightly concave to straight. Dorsal profile of body slightly convex predorsally; posteroventrally slightly slanted along base of dorsal fin; slightly concave from posterior termination of dorsal fin to adipose fin and slightly concave along caudal peduncle. Dorsal surface of body very slightly keeled predorsally and rounded transversely posterior to dorsal fin. Ventral profile of body gently convex from tip of lower jaw to termination of anal fin base, slightly concave along caudal peduncle. Prepelvic region moderately flattened transversely proximate to region of pelvic-fin insertion. Slight mid-ventral keel present between pelvic-fin insertion and anus.

Head pointed in profile. Mouth terminal. Snout length exceeding horizontal eye diameter; nostrils of each side close together, anterior circular, posterior crescent-shaped. Adipose eyelid present but scarcely developed, more pronounced anteriorly, but leaving most of eye uncovered. First infra-orbital greatly enlarged, its ventral border together with anterior border of anterovent-

Table 1.—Morphometrics and meristics of holotype (MZUSP 41519) and paratypes of *Prochilodus britskii*: A, range for paratypes ($n = 6$), MZUSP 38856–61; B, range for all the type specimens. Standard length expressed in mm; measurements 1 to 15 are percentages of standard length; 16 to 20 are percentages of bony head length.

Character	Holotype	A	B
Morphometrics			
Standard length	221.5	195.5–238.5	195.5–238.5
1. Greatest body depth	29.1	28.9–30.3	28.9–30.3
2. Snout to dorsal-fin origin	47.2	45.6–47.4	45.6–47.4
3. Snout to pelvic-fin origin	54.4	53.9–55.1	53.9–55.1
4. Snout to anus	75.5	76.5–79.0	75.5–79.0
5. Snout to anal-fin origin	77.9	78.2–81.3	77.9–81.3
6. Posterior termination of dorsal-fin base to adipose-fin origin	29.4	27.5–30.2	27.5–30.2
7. Posterior termination of dorsal-fin base to end of caudal peduncle	42.5	41.7–43.7	41.7–43.7
8. Dorsal-fin base length	14.6	14.3–16.2	14.3–16.2
9. Dorsal-fin length	24.2	23.3–25.3	23.3–25.3
10. Anal-fin base length	10.5	8.4–10.4	8.4–10.5
11. Pectoral-fin length	20.5	18.3–21.3	18.3–21.3
12. Pelvic-fin length	16.7	15.1–16.5	15.1–16.7
13. Caudal peduncle length	13.9	12.5–13.8	12.5–13.9
14. Caudal peduncle depth	9.3	8.8–9.4	8.8–9.4
15. Bony head length	26.1	25.7–26.2	25.7–26.2
16. Snout length	38.4	36.4–42.6	36.4–42.6
17. Horizontal eye diameter	18.9	17.4–20.6	17.4–20.6
18. Postorbital length	44.1	41.2–45.7	41.2–45.7
19. Least interorbital width	47.9	46.2–49.2	46.2–49.2
20. Gape width	39.8	38.7–39.9	38.7–39.9
Meristics			
Lateral line scales	44	41–43	41–44
Scale rows between dorsal-fin origin and lateral-line	7	6–7	6–7
Scale rows between anal-fin origin and lateral-line	6	5–6	5–6
Scale rows between pelvic-fin origin and lateral-line	7	6–7	6–7
Scale rows around caudal peduncle	14	13–14	13–14
Median predorsal scales	14	13–14	13–14
Median scales between posterior termination dorsal-fin base and adipose-fin origin	14	13–15	13–15
Vertebrae	41	40–41	40–41
Teeth in interior “V”-shaped tooth row of upper jaw, left side	13	10–13	10–13
Teeth in interior “V”-shaped tooth row of lower jaw, left side	7	6–7	6–7

trally expanded second infraorbital delimiting a triangular notch bordering posterior margin of very fleshy lips (see Roberts 1973: 219, fig. 17 for very similar situation in *Ichthyocephalus*, and Vari 1983:33, 49, for

phylogenetic significance of second infraorbital form). Fleshy lips form oral disc when protruded. Functional teeth in two rows in each jaw; internal tooth row of upper and lower jaws “v”-shaped. External tooth rows

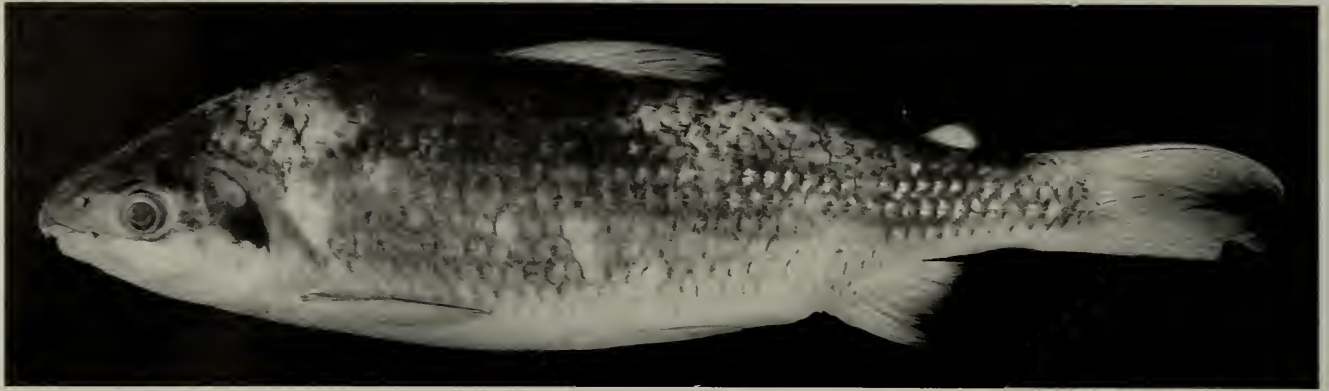


Fig. 1. *Prochilodus britskii*, new species, holotype, MZUSP 41519, 221.5 mm SL, Brazil, Mato Grosso State, rio Apiacá, N of city of Juará, upriver from a fall ($\sim 10^{\circ}36'S$, $58^{\circ}04'W$), 15–24 Feb 1988.

on both jaws follow margins of lips, with about 73 teeth in each half of upper jaw and 60 in each half of lower jaw in holotype. “V”-shaped inner tooth row on upper jaw with 10 to 13 [13] on left side; “v”-shaped inner tooth row on lower jaw with 6 to 7 [7] teeth on left side. All teeth of similar size and spoon-shaped in frontal view (see Mago-Leccia 1972, fig. 4A for photograph of *Prochilodus* tooth) and movably implanted in fleshy lips. Upper and lower lips bordered by small globular fleshy papillae.

Scales ctenoid. Scales along dorsal midline between posterior termination of dorsal-fin and adipose-fin origin unmodified, without tongue-shaped membranous process on posterior border (see Mago-Leccia 1972:44, 58, concerning conditions in *Semaprochilodus* and *Ichthyoelephas*). Lateral line completely pored, with 41 to 44 (3 paratypes with 41, 1 paratype with 42 and 2 paratypes with 43)[44] pored scales; 6 or 7 (2 paratypes with 6 and 4 paratypes with 7)[7] transverse scale rows from origin of rayed dorsal fin to lateral-line; 6 or 7 (3 paratypes with 6 and 3 paratypes with 7)[7] horizontal scale rows from the origin of pelvic fin to lateral-line; 5 or 6 (5 paratypes with 5 and 1 paratype with 6)[6] horizontal scale rows from origin of anal fin to lateral line; 13 or 14 (3 paratypes with 13 and 3 paratypes with 14)[14] median predorsal scales; 13 to 15 (1 paratype with 13, 4 paratypes with 14 and 1 paratype with 15)[14] middorsal scales between posterior termination of dorsal- and adipose-fin origins; 13

or 14 (2 paratypes with 13 and 4 paratypes with 14)[14] horizontal scales rows around caudal peduncle.

Dorsal fin preceded by small anteriorly bifurcated spine (see Géry 1977:367) considered herein as an unbranched ray in fin-rays counts. Dorsal-fin rays iii,9 or iii,10 (iii,9 rare)[iii,10]; anal-fin rays iii,8 [iii,8]; pectoral-fin rays i,13 or i,14 (i,14 most common)[i,13]; pelvic-fin rays i,8 [i,8]; principal caudal-fin rays 10/9 [10/9].

Rayed dorsal-fin truncate distally; posterior unbranched and anterior branched rays longest, subequal; fin origin nearer to snout tip than to caudal-fin base. Longest length of adipose fin about equal to or slightly larger than horizontal eye diameter. Origin of adipose fin on vertical crossing anal-fin base just anterior of its posterior termination. Pectoral fin distally pointed; when fin depressed tip reaching approximately two-thirds of distance between fin origin and pelvic-fin origin. Pelvic fin falcate, its origin along vertical imaginary line passing through midpoint of dorsal-fin base; when depressed tip of fin reaching approximately four-fifths of distance to anus. Axillary scale present, pointed, its length about one-third of pelvic-fin length. Posterior unbranched and anterior branched rays of anal fin longest, subequal. Caudal fin forked. Total vertebrae 40 or 41 (all paratypes with 40)[41].

Color in alcohol. — Background body color silvery-yellow to silvery-brown on dorsal half of body and head. About seven very

diffuse vertical bands on sides of body between head and caudal fin; bands formed by chromatophore fields, without definite limits. Field of black or brown chromatophores forming irregularly shaped spot on dorsal half of opercle. Dorsal fin with irregularly distributed diffuse and barely visible small dark spots. Adipose dorsal with centrolateral area dusky and dorsal margin black. Pectoral, pelvic, and anal fins mostly hyaline, with distal portions somewhat dusky. Iris silvery-yellow with dusky dorsal and ventral areas.

Color in life. — When recently collected the specimens showed a strong reddish-yellow coloration on the pelvic, anal, and caudal fins (Heraldo A. Britski, pers. comm.).

Distribution. — Rio Apiacá, tributary of the rio Arinos, a tributary of the rio Juruena, upper rio Tapajós system, in the State of Mato Grosso, Brazil.

Etymology. — The species name, *britskii*, is in honor of Dr. Heraldo A. Britski (MZUSP), who made the specimens available to me, in recognition of his great contributions to Brazilian ichthyology.

Remarks. — During the ongoing revisionary and phylogenetic studies of *Prochilodus* the only other species of the genus found in the southern portion of the rio Amazonas basin was *Prochilodus nigricans* Agassiz, 1829 (Castro 1990). *Prochilodus nigricans* is very distinct from *P. britskii*, most notably in belonging to the group of *Prochilodus* species with black marks on the caudal fin. Whereas *P. britskii* has a remarkable restricted distribution for a *Prochilodus* species, being known from a single small tributary of the Amazon, *P. nigricans* is widely distributed through the huge Amazon Basin, being probably one of the most widely distributed species of South American freshwater fishes.

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